

RECORDS AND DESCRIPTIONS IN THE MEGACHILID
SUBGENUS ARGYROPILE
(Hymenoptera, Megachilidae)¹

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Four species of *Megachile* have been included in the subgenus *Argyropile*, *parallela* (the genotype), *townsendiana*, *nebraskana* and *sabinensis*. Both *parallela* and *townsendiana* are known in both sexes and the close affinity of the two has been established, but the others are known only in the female sex and their relationship to the first two species is not so clearly evident. Recently two more species have been discovered which seem to be related to members of this group. However, since the males of these also are not known, their inclusion in the subgenus is open to question, just as with *nebraskana* and *sabinensis*, and a positive opinion concerning their affinities will not be justified until the males have been discovered. Descriptions of these two species, as well as new locality records for the other species of *Argyropile* follow. This group of species may be separated from the other subgeneric groups by use of the key to subgenera of *Megachile* (Trans. Am. Ent. Soc. LIX, p. 306, 1934), and the subgeneric characters are given in Part VI of the Revision of *Megachile* (Trans. Am. Ent. Soc. LXIII, p. 46, 1937).

MEGACHILE (ARGYROPILE) PARALLELA Smith

This species apparently has not been recorded previously from the states in the following list of records.

Arkansas: 1 ♀, Eureka Springs, Ouachita Mountains, September 4, 1939 (E. C. Van Dyke). Georgia: 1 ♀, Perry, August 12, 1939 (E. G. Wegenek). Iowa: 1 ♀, Sioux City (C. W. Ainslie). Mexico: 1 ♂, 1 ♀, Torreon, Chir., June 17, 1937 (Mead); 1 ♀, Estrella District, Alamos, Sonora, October 2, 1933 (R. M. and G. E. Bohart). Missouri: 1 ♂, 8 ♀, Branson, September 9-17, 1937; 8 ♀, Ozark Lake, September 23-24, 1939 (both E. C. Van Dyke). Oklahoma: 1 ♀, Strang, June 18, 1939; 1 ♂, Tahlequah, June 17, 1939 (Kaiser-Nailon).

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MEGACHILE (ARGYROPILE) TOWNSENDIANA Cockerell

Since this species, which was described from Arizona, has been recorded previously from only one eastern locality, Miami, Florida, the Florida and North Carolina records in the following list are of especial interest.

Arizona: 1 ♀, Continental, July 15, 1940 (E. E. Kenaga); 1 ♂, 1 ♀, Tombstone, August 13, 1940 (E. S. Ross). California: 1 ♂, Imperial County, June, 1912 (J. C. Bridwell). Florida: 1 ♀, St. Augustine, October 12, 1929 (H. T. Fernald). New Mexico: 1 ♀, Santa Rosa, June 23, 1940 (E. E. Kenaga). North Carolina: 2 ♂, mouth of Cape Fear River, July 25, 1941 (T. B. Mitchell). Texas: 1 ♀, Austin, April 27, 1902; 1 ♀, Galveston, June, 1900 (both A. L. Melander); 1 ♀, College Station, May 30, 1938; 1 ♂, El Paso, August 18, 1908 (F. C. Pratt).

MEGACHILE (ARGYROPILE) NEBRASKANA Mitchell

Colorado: 1 ♀, Hygiene, July 11, 1936. Nebraska: 1 ♀, Harrison, July 18, 1936 (J. Player). Wyoming: 12 ♀, Wheatland, July 14, 1937 (R. H. Beamer).

MEGACHILE (ARGYROPILE) SABINENSIS Mitchell

Arizona: 1 ♀, 10 miles west of Bisbee, August 10, 1940; 1 ♀, Turner, August 9, 1940; 1 ♀, 10 miles east of Douglas, August 11, 1940 (all E. S. Ross); 1 ♀, Texas Canyon, Chiricahua Mountains, Cochise County, 5000-6000 feet, September 16, 1927 (J. A. Kusche). Texas: 1 ♀, Alpine, June 10, 1930 (E. G. Linsley); 1 ♀, Sanderson, June 10, 1930 (J. O. Martin); 1 ♀, Sheffield, June 14, 1940 (T. B. Mitchell).

Megachile (Argyropile) asteræ Mitchell, new species

This species is nearest to *M. nebraskana* and *M. sabinensis*. The rather coarsely rugoso-punctate surface of the vertex and mesonotum will readily serve to separate it from *nebraskana*, while in *sabinensis* there is a minute median denticle on the clypeal margin which is lacking in *asteræ*, and the puncturation in general is finer and more definitely separated in *sabinensis* than in this new species.

Female. Size: Length, 15 mm.; breadth of abdomen, 5 mm.; anterior wing, 10 mm.

Structure: Face slightly broader than long, eyes parallel; clypeal margin with a short incurved area medially, the rim of which

is impunctate; mandible 4-dentate, a cutting edge between third and fourth teeth; second joint of flagellum subequal to pedicel, shorter than first joint; lateral ocelli very slightly nearer eyes than to edge of vertex, the vertex broad and flat, its margin nearly straight; cheeks broader than eyes; mid and hind metatarsi equalling their tibiae in length and nearly so in width, the anterior and posterior apical angles of mid-tarsal joints produced, but not spine-like as in *parallela*; apical margin of fourth and fifth abdominal terga depressed, that of the third only laterally; sixth tergum straight in profile, with a few basal erect hairs visible at that angle; sixth sternum largely bare over apical half, the rim reflexed, thickened or "rolled" (as in *nebraskana*).

Puncturation: Shallow on clypeus, rather coarse and irregular medially, becoming very fine, close and indistinct laterally and above; supraclypeal area with a few relatively coarse close punctures, otherwise they are minute and densely crowded; very fine and close on cheeks; more coarse and deep, but crowded over entire vertex; crowded over entire thorax, rather coarse on mesonotum medially and on pleura below, otherwise about as fine as on vertex; very fine and close on abdomen basally, becoming more deep and distinct to fifth tergum, separated by more than their width on apical portion of disc on this segment, fine and crowded over entire sixth tergum.

Color: Black; tegulae and spurs ferruginous; wing nervures black or piceous, the wing lightly infuscated, more so apically.

Pubescence: Whitish on head, thorax and legs, some dark hairs intermixed on vertex and mesonotum, hairs covering outer surface of mid metatarsi more yellowish; white on basal segment of abdomen and on basal portions of discs of second and third terga, these with dark pubescence apically and fourth and fifth covered with dark hairs, the sixth with some dark basal hairs laterally, intermixed with whitish suberect hairs, the apical half covered with pale tomentum, this becoming brownish at tip; segments 1-5 with entire white apical fasciae, these rather thin on first and second segments; scopa white, with no dark hairs at all evident, that on sixth sternum more brownish.

Type, female, No. 5233, California Academy of Sciences, Ent., KAIBAB FOREST, UTAH, September 21, 1938 (I. McCracken, on blue *Aster*).

Megachile (Argyropile) rossi Mitchell, new species

The following characters will serve to distinguish this apparently distinct form from *M. parallela* Smith, its nearest ally: the sixth tergum is definitely concave in profile; the clypeal margin lacks the median tubercle characteristic of *parallela*, being represented by the merest trace; the clypeal punctures are considerably finer than in *parallela*; and the apical posterior

angles of the mid tarsal segments are not produced as in *parallela*, although the anterior apical angles are much elongated. In other structural details, and in puncturation and pubescence, little if any difference in comparison with *parallela* can be detected. Positive proof that this is a distinct species, rather than a marked variant of *parallela*, awaits the discovery of the male and the collection of a considerable series of females.

Female. Size: Length, 15 mm.; breadth of abdomen, 4.3 mm.; anterior wing, 9.5 mm.

Structure: Face distinctly broader than long; eyes slightly convergent below; median half of clypeal margin with a polished impunctate rim in the center of which is a bare trace of a denticle; mandible 4-dentate, third tooth acute, about mid way between inner and outer teeth; apical joint of antenna longer than the others which are about equal to each other, the basal joint not quite twice the length of the pedicel; lateral ocelli subequally distant from eyes and edge of vertex, very slightly nearer to each other; vertex rather flat, hind margin nearly straight; joints of mid tarsi with anterior apical angles produced into slender finger-like projections, the posterior angles very short; hind metatarsi very broad and long, not quite twice the length of the remaining joints combined; segments 2-4 of abdomen with rather deep transverse basal grooves, apical margins of segments 3-5 deeply depressed, that of segment 2 depressed only toward sides; sixth tergum slightly but distinctly concave in profile, showing no erect hairs; apical bare rim of sixth sternum but very slightly reflexed.

Puncturation: Rather fine and sparse on the polished clypeus, more close on the cheeks and upper face, becoming minute and crowded on cheeks above, more coarse and distinctly separated on vertex where the surface is tessellated; close and rather fine on scutellum and on mesonotum laterally, distinctly separated medially, the surface tessellated, the pleura more coarsely rugosopunctate; close and fine on abdomen basally, becoming more distinct apically, sparse and rather coarse toward the apical depressed margin of segment 5, fine close and distinct on segment 6.

Color: Black; wings subhyaline; tegulae and wing nervures ferruginous; spurs yellow.

Pubescence: Entirely white; short and thin on vertex and mesonotum, very short on discs of segments 3-6 of abdomen, longer and more dense at sides of face, on cheeks below, on pleura, propodeum and basal segments of abdomen; scutello-mesothoracic suture white fasciate, and a dense white fringe above tegulae; abdominal segments white fasciate, but the more apical ones obscured (due apparently to condition of the specimen), sixth tergum largely covered with silvery appressed tomentum, becoming brownish toward the tip; scopa white, with no dark hairs in evidence.

Type, female, No. 5234, California Academy of Sciences, Ent., TOMBSTONE, ARIZONA, August 13, 1940 (E. S. Ross). Paratype: 1 female, 10 miles west of DOUGLAS, ARIZONA, August 11, 1940 (E. S. Ross).

The following key separates the females of all of the species and varieties that have been placed in *Argyropile* up to this time. One of these, *flavihirsuta* Mitchell, is Mexican, and has not been found north of the Mexican border.

KEY TO FEMALES OF ARGYROPILE

1. Sixth tergum distinctly concave in profile, covered with short, dense, appressed tomentum.....2
- Sixth tergum straight in profile.....3
2. Apical rim of sixth sternum reflexed sharply upward; clypeal margin with a minute but distinct median denticle; punctures of clypeus close and rather coarse.....*townsendiana*
- Apical rim of sixth sternum not reflexed upward; median denticle of clypeal margin reduced to the barest trace; punctures of clypeus rather sparse, the surface shining.....*rossi*
3. Clypeal margin with at least a slight median denticle.....4
- Clypeal margin with no trace of a median denticle.....8
4. Inner angle of mandible incised, resulting in a 5-dentate condition; pubescence entirely bright fulvous.....*flavihirsuta*
- Mandible distinctly 4-dentate, the inner angle acute.....5
5. Apical rim of sixth sternum reduced, sharply reflexed, not at all protuberant; punctures of clypeus very close; pubescence of sixth tergum subappressed, not densely tomentose.....*sabinensis*
- Apical rim of sixth sternum protuberant; clypeus shining, the punctures well separated; sixth tergum densely pale tomentose medially and apically.....6
6. Scopa on sixth sternum black.....*parallela* var. *reta*
- Scopa entirely pale.....7
7. Lateral ocelli slightly nearer edge of vertex than to eyes.....*parallela* var. *tulariana*
- Lateral ocelli equidistant from eyes and edge of vertex.....*parallela*
8. Apical margin of clypeus straight medially, clypeal punctures well separated, the surface shining; mesonotum tessellated, with sparse and very minute punctures.....*nebraskana*
- Clypeal margin incurved medially, the surface densely and irregularly punctate, dull; vertex and dorsum of thorax very densely punctate throughout.....*asterae*